

SetSite Module

User Manual

April 1990

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1 *Introduction*

Data I/O's SetSite module allows you to perform set or gang programming operations with the UniSite (set and gang programming are defined on the following pages). SetSite programs MOS/CMOS EPROMs and EEPROMs in the DIP style package. See the device list shipped with each UniSite software update for a complete list of supported devices. Devices programmable with SetSite are listed in the Product Module column on the device list.

Included here are applications for using SetSite and explanations of memory allocation for set/gang programming. If you have never used UniSite before, read through the "Sample Sessions" section of the UniSite Operator's Manual. The procedures and explanations in the SetSite manual assume at least a basic working knowledge of how UniSite operates.

The following information is contained in this manual:

Compatibility	Describes compatibility requirements between UniSite and SetSite.
Specifications	Describes SetSite's physical and operating specifications.
SetSite Features	Describes how to select gang/set programming.
Operating SetSite	Provides description of SetSite specific screens and functions.
Set and Gang Programming	Provides examples of set and gang programming.
Applications	Provides examples of how UniSite and SetSite may be used in a programming environment.
SetSite Messages	Provides details on SetSite specific messages.

Compatibility

Whether or not SetSite is compatible with your UniSite depends on (1) the version of UniSite software diskette you are using and (2) your memory requirements. The SetSite module is fully compatible with any UniSite that has a V2.0 (or later) system disk. If you are using SetSite, ChipSite, or PinSite and the part number of your UniSite is 901-0058-007 or less, it is recommended that you have the UniSite updated. This will be done as part of the standard warranty and is required to assure that SetSite will operate properly with all devices.

Memory requirements depend on the type of device, the set size and word-width you want to use for set programming. UniSite has a standard user RAM size of 128K x 8. Using this architecture, you could gang program up to eight 1Mbit devices (programming the SAME data into all eight parts). Set programming the same eight 1Mbit devices (programming so each device has a DIFFERENT block of data) would require 1Mbyte of user RAM. Should your programming needs require it, Data I/O offers upgrades for additional RAM. Contact your local Data I/O Service Center for more information about the RAM upgrades.

Note: If the disk is being used as user memory (instead of RAM), the user memory you have available is limited by the free space currently available on the disk. The disks have a capacity of 720 Kbytes when newly formatted.

If you need to check what your UniSite's current configuration is, remember that both the RAM size and software configurations appear on the upper-right portion of most of the UniSite screens.

Specifications

Physical	11.75 X 8.5 X2.5 in.
Temperature	Operating range: +5 to +40 C
Humidity	Up to 90%, non-condensing
Altitude	Operational to 10,000 ft.

Features

Selecting the SetSite Module

You may select the SetSite module in one of two ways: (1) in the Load, Program or Verify menus, pressing the **[PF4]** key until the SetSite screen is displayed or (2) using the "mode" parameter field in the MANUFACTURER LIST screen.

To select SetSite using the mode field, first enter the Select device menu (press **[S]** at the MAIN MENU). The MANUFACTURER LIST screen will then appear—the mode field is the reverse video block on the right. Move the cursor to the mode field. The space bar toggles the display between "Single device" and "Gang/set" mode. By choosing "Gang/set" mode, only the manufacturers and devices supported by the SetSite module will appear in the MANUFACTURER LIST and PART MENU FOR MANUFACTURER screens.

If you press **[PF4]** after selecting a Load, Program or Verify screen, the appropriate gang/set screen will appear. Screens which are specific to the SetSite module operation are different than for other UniSite modules and display information on-screen for each of the eight device sockets.

Pressing the **[PF4]** key allows you to select between the "non-default" or "all parameters" screens for either the PSM (smaller) module or the FSM (larger) module. These represent the four selections possible with the **[PF4]** key. UniSite will sequence through these four selections with the **[PF4]** key. The "ready" LED will light for the module currently selected. Devices should be removed from any module which is not selected.

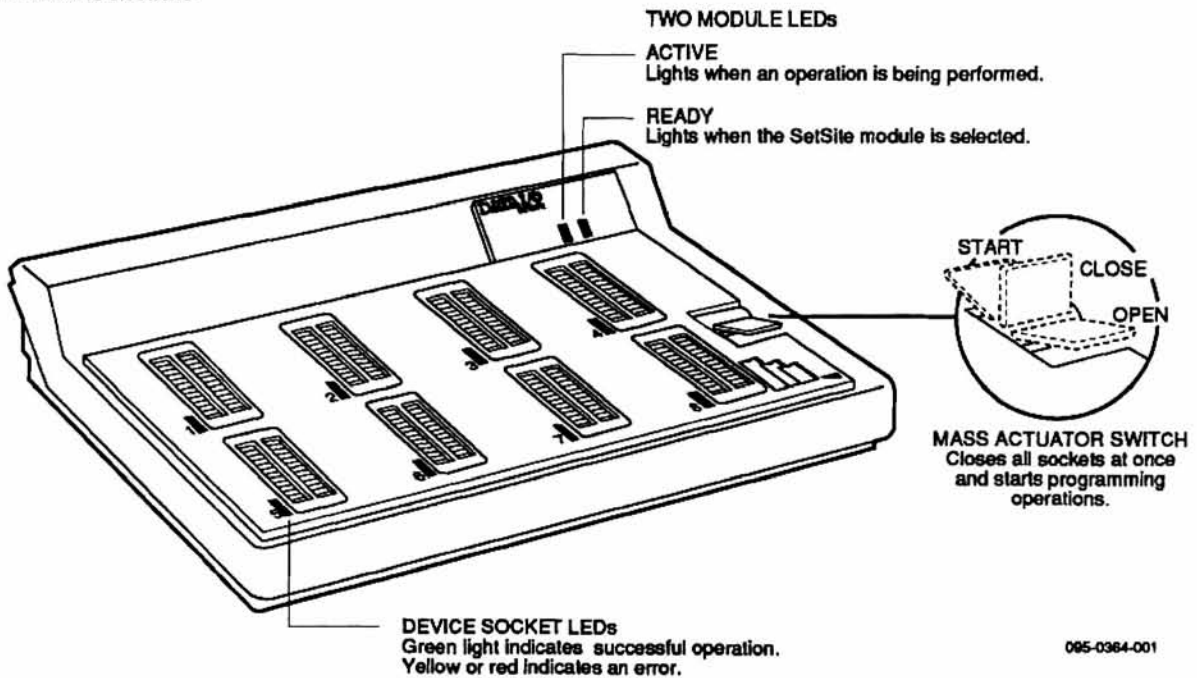
Start Switch

The SetSite module is shown below in Figure 1. The eight 40-pin DIP sockets have a "mass-actuation" feature: there is only one socket lever on the module. Moving this lever moves ALL the socket contacts.

The socket lever has three positions: open, close and start. Because the lever is spring-loaded, it will automatically return to the closed (straight-up) position after being pushed to the start position. The start position – lever pushed forward toward the ACTIVE/READY indicator panel – initiates (starts) Load, Program or Verify operations, just like pressing **[Enter]** on the terminal keyboard.

The socket lever also functions as an interrupt or **[Break]** key. If you pull the switch back (thereby opening the socket contacts) while an operation is in progress, that operation will be halted.

Figure 1-1
The SetSite Module



LED Indicators

SetSite has two module LEDs and eight individual socket LEDs. The two module LEDs indicate the current status for the entire unit. The "READY" LED lights yellow when SetSite is ready for use. The "ACTIVE" LED lights yellow whenever an operation (such as programming parts) is taking place.

CAUTION: *When the "ACTIVE" LED is lit, programming voltages are being applied to the device sockets. You should not remove socketed devices or remove the SetSite module from UniSite when the "ACTIVE" LED is illuminated.*

LEDs next to each socket indicate status of that socketed part. The LEDs light green to indicate a successful operation; yellow or red indicates an error. A red LED signals a "fatal" error, meaning that the device cannot be programmed. A yellow LED signals a "non-fatal" error—the device can still be programmed. (For example, a "non-blank device" error is non-fatal because even though the device is found to contain programmed bits, those locations can still be programmed over). The table below shows conditions and LED colors corresponding to each.

Condition	LED Color
Module	
SetSite READY for use	"READY" yellow
Operation executing	"ACTIVE" yellow
Socket	
Device programmed successfully	green
Device errors	
Non-blank	yellow
Backwards device	red
Wrong silicon signature	red
Illegal bit	red
Programming error	red
Verify error	red
Empty socket	LED off

2 Operation

SetSite Screens

When the SetSite module has been selected (using one of the two methods described in the previous subsection), the SetSite screens will appear. These screens are different than the screens (see the figure below) for the other modules. This subsection describes the unique features of the SetSite screens.

Reverse video blocks at the bottom of the SetSite screen represent the eight SetSite sockets. Each block displays information for the socket it represents: error status, checksum, starting RAM address and electronic ID information is displayed here.

Figure 2-1
The SetSite Screen

The screenshot shows the SetSite screen with the following content:

```

FILENAME:                               RAM: 128KB  REV: 2.5B  2.5B  1.1
MANUFACTURER: Intel                     PART #: 27256  FAMILY/FIN CODE: 893 / 832
I/O FORMAT: Motorola Exormax
-
LOAD GANG/SET OF DEVICES (all parameters)
User data size      [ 10000 ]  Total set size      [ 1 ]  Set auto-increment [ 0 ]
Destination (RAM, Disk) [ 0 ]  Data word width    [ 16 ]  Compare elec ID   [ 0 ]
Memory begin address [ 0 ]    Next device        [ 1 ]
Device begin address [ 0 ]
Device block size    [ 0000 ]
MESSAGE AREA - tells status of device. Displays "PASS" if operation was successful; displays an error if there is a problem.
Checksum Starting address Electronic ID
1  HHHHHHHH 0
2  HHHHHHHH 1
3  HHHHHHHH
4  HHHHHHHH
Checksum Starting address Electronic ID
5  HHHHHHHH
6  HHHHHHHH
7  HHHHHHHH
8  HHHHHHHH
PF1: Main menu  PF2: Prev menu  PF3 or ? : Help  PF4: Select mode/options
NEXT DEVICE - indicates next device in the set.
SOCKET DISPLAY - shows the Begin Device Address for each device, indicating the first address of user data to program or load from the device.
  
```

Information shown in each of the blocks will differ depending on what kind of operation you are performing. If you are doing a Load operation, the eight blocks show how UniSite's user memory will be allocated. If you are programming devices, the reverse video blocks show how the user data will be organized into the parts.

After any device operation (such as loading or verifying data) has completed, messages will appear in the area above each block. The messages indicate what the device's status is. PASS will appear above all successfully programmed parts. Any programming errors that might occur will display above the block where the error occurred. A list of SetSite's status and error messages can be found at the back of this manual.

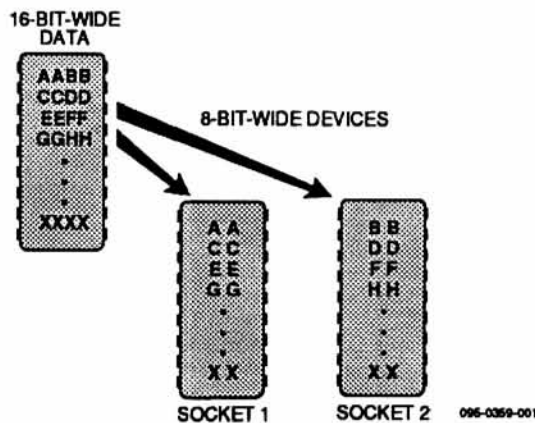
The "Next device" parameter on the screen can be used to visually scroll through the data organization. This feature is useful if you are programming partial sets of devices or if you are programming a set of more than eight devices. For example, say you are programming a set of 20 devices, and want to check status of organization in the ninth device of the set. If you move the cursor to the Next device parameter and type in 9, UniSite will redisplay the status data showing device number 9s status data in socket number one.

Set and Gang Programming

Set Programming

A "set" is defined as being one or more devices containing a unique block of data—regardless of how many devices that data is programmed into.

*Figure 2-2
Set Programming -
each device ends up with
unique data.*



SetSite can program any set size from one to 99. If you choose a set size such that the number of devices is less than or equal to 4, then multiple sets can be programmed on the SeiSite module simultaneously. The way that data will be arranged in the devices programmed is determined by three factors: (1) the device word-width, (2) the data word-width and (3) the number of devices you want to have in each set. The general equation to use is

$$\text{Set Size} = \frac{\text{Device word-width}}{\text{Data word-width}} \times \text{Number of devices}$$

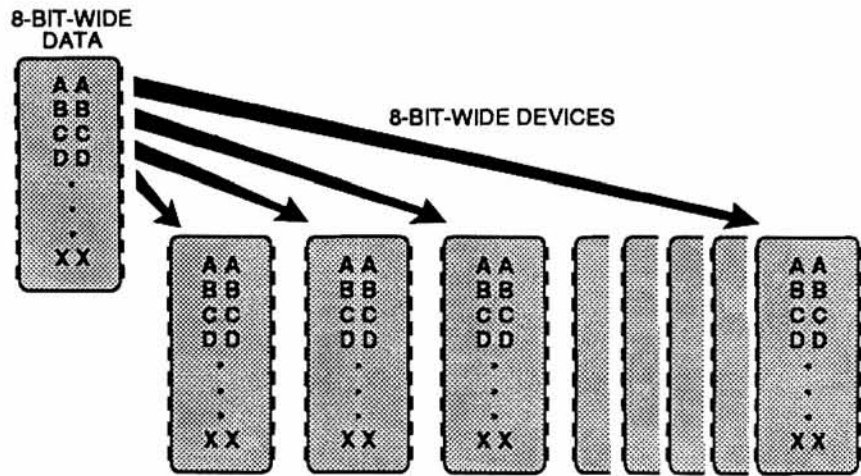
For example, if you are programming two 27128 devices, which are 8-bit-wide (device word-width) parts: If your programming data is constructed 16-bit-wide (data word-width) in the target system, the set size $[8/16 \times 2]$ equals one. The byte swap flag is enabled for this example.

Gang Programming

"Gang" programming simply means that the same data will be programmed into each device: the set size is therefore equal to one (and the device word-width should equal the data word-width).

If you want to perform gang programming operations with SetSite, you will need to specify a set size of ONE in the Programming data entry screen.

Figure 2-3
Gang Programming - the programmed devices all have the same data.



095-0360-001

3 *Applications*

This part of the SetSite manual includes examples of how UniSite and SetSite might be used in a programming environment. Three examples are given here:

- Gang programming eight 27128 devices — programming the same data into all eight parts.
- Set programming devices — programming devices so that each ends up with unique data.
- Programming a partial set of devices — using only part of the original block of data to program the devices.

Gang Programming

This example shows how to load data from a master (already programmed) 27128 device into RAM and then gang-program that data into a set of eight blank devices.

1. Power up UniSite with the SetSite module installed (if necessary, refer to the procedure in the Operator's manual).
2. Using the Select device menu, select any 27128 EPROM from the manufacturers' and device type lists. When you have chosen a part, UniSite will return to the MAIN MENU.
3. Type **[L]** to go to the Load device menu. The Load Gang/Set of Device screen should then appear. If not, press the **[PF4]** key until the Load Gang/Set screen appears: the "READY" indicator will light yellow on SetSite's panel when SetSite has been selected.
4. The 27128 is a 16K X 8 part: there are 16K (or 4000 hex) addressable locations. Therefore, the "device block size" should be set at 4000. Check the device block size window and make sure that UniSite has set the "device block size" to 4000 and "data word width" to 8.
5. Check the "User data size" window. Make sure that the user data size is set at 4000.
6. Insert the master 27128 device into SetSite's socket number one; the socket at the upper-left of the module. The device should be inserted bottom-justified: no open socket pins below the device. Push the socket lever up to the closed position.
7. When you are certain the displayed screen parameters are correct, push the socket lever forward again to the START position (or press **[J]** on the terminal keyboard) to start loading the data. The action symbol on the UniSite screen will rotate and when the operation is finished, a message will appear. Because the socket lever is "spring-loaded", it will automatically return to the closed position.
8. The screen will now show the data just loaded. The "total set size" will be 1, meaning that the entire set of data can be programmed into one device. A "0" appears in socket number one next to the starting Address parameter, meaning that data was loaded from socket one beginning at user memory address 0. Notice that asterisks appear inside the other device socket boxes on the screen: it is not possible to "gang-load" data into RAM with the set size equal to 1 (gang mode).
9. Press **[PF2]** to go back to the MAIN MENU. Open the sockets and remove the master device. Data is now loaded into RAM; the next part of the procedure explains how to program that data into the eight blank devices.
10. Type **[P]** to go to the Program Gang/Set of devices menu.

11. Insert the eight devices into the SetSite sockets. Push the socket lever up to the closed position. Notice that starting address 0 appears in the boxes for all eight devices on-screen. This means that UniSite will take data from user memory address 0 to program EACH device, so they will all end up with the same data.
12. Push the socket lever forward to the START position (or press on the terminal's keyboard) to begin programming the devices.
13. The action symbol on the UniSite screen will rotate and when the operation is finished, a message will appear. "PASS" will appear on the SetSite screen, above all sockets whose devices are successfully programmed.
14. The devices are now programmed. Pull the socket lever to the open position and remove the eight devices.
15. If you want to program eight more devices with the same data, simply repeat steps 11 through 14.

Set Programming

This example shows how to load data from a master (already programmed) 27512 device (containing a whole 64K set of data) into RAM and then set program that data into eight blank 27256 devices (4 sets): Because the 27256 has half the memory of the 27512, it will require two 256's to store an entire SET of data from a 512. The "set size", therefore, equals two. If eight devices are programmed, four sets (of two 27256's) will be produced.

The 27512 is a 64K X 8 part: it has 64K (or 10000 hex) addressable locations; the 27256 devices have 32K (or 8000 hex) addressable locations. So that you do not have to worry about calculating and entering memory block parameters for two different types of devices, UniSite will AUTOMATICALLY alter device parameters when the devices are READY to be programmed.

1. Power up UniSite with the SetSite module installed. (If necessary, refer to the procedure in the UniSite Operator's manual.)
2. Using the Select device menu, select any 27512 EPROM from the manufacturers' lists. When you have chosen a part, UniSite will return to the MAIN MENU.
3. Type to go to the Load device menu. The Load Gang/Set of Device screen should then appear. If not, press the key to display the different Load screens until the correct one appears. The "READY" indicator on SetSite's panel will illuminate when UniSite is ready.
4. Make sure the "device block size" window displays 10000, so that the device block size equals the selected device's size.

5. Make sure the "User data size" window displays 10000, and the "Data word width" shows 8. The "set size" will be 1, meaning that the entire set can be programmed into one device. A "0" appears in socket number one next to the starting Address parameter, meaning that data will be loaded from socket one beginning at user memory address 0. Notice that asterisks appear inside the other device sockets: it is not possible to "gang-load" data into RAM, only one device's data may be loaded at a time with a set size of 1.
6. Insert the master 27512 device into SetSite's socket number one. The device should be inserted bottom-justified: no socket pins below the device. Push the socket lever up to the CLOSED position.
7. When you are certain the displayed screen parameters are correct, push the socket lever forward to the START position (or press). The action symbol on the UniSite screen will rotate and when the operation is finished, a message will appear.
8. Pull the socket lever back to the open position and remove the device.
9. Press PF2 to go back to the MAIN MENU. Data is now loaded into RAM; the next part of the procedure explains how to program that data into the eight blank devices.
10. Type S to enter the Select device screen. Select the 27256 device from the Select device menu. UniSite will then load the correct programming algorithm for the devices.
11. Type P to go to the Program Gang/Set of devices menu.
12. Even though you will be programming data into devices that are only half as big as the master, you will NOT need to change the Device block size parameters: UniSite does it automatically when you select the device.

Note: UniSite now displays "Set Size 2." This means the entire set of data from the 27512 can be programmed into two devices. Notice also the memory allocation shown at the bottom of the screen: starting address 0 is shown for the odd-numbered sockets; address 8000 is displayed for the even-numbered sockets. This display means that data from UniSite's RAM addresses 0000 to 7FFF will be programmed into half of the devices (those in odd-numbered sockets); data at addresses 8000 to FFFF will be programmed into the other four devices (those in even-numbered sockets).

13. Insert the eight devices into the SetSite sockets. Push the socket lever up to the CLOSED position.
14. When you are certain the displayed screen parameters are correct, push the socket lever forward to the START position (or press) to begin programming the devices.
15. The action symbol on the UniSite screen will rotate and when the operation is finished, a message will appear.
16. The devices are now programmed. Pull the socket lever back to the open position and remove the eight devices.

Programming Partial Sets of Devices

There are some applications which call for programming only part of a device set. UniSite and SetSite are designed to allow partial device operation with a minimum of effort on your part.

Reprogramming Devices

Say you are programming a set of eight devices and two of the eight in the set do not program successfully. To reprogram the two devices, this is what you would need to do:

1. Move the socket lever back to the OPEN position and remove the six programmed parts and the two bad devices.
2. With NEW devices installed in the socket positions of the two that failed, push the socket lever up to the START position (or press), initiating the programming operation.

It does not matter what two sockets the devices are in; the six LEDs adjacent to the empty sockets will remain off. You also do not need to change any of the data block limits: UniSite will automatically assume you want to attempt programming the SAME data into the socketed parts.

Programming Sets of More Than Eight Devices

Programming using a set size of more than eight devices may also be considered "partial" set programming, since the set size is greater than the number of devices that SetSite can program simultaneously.

Devices in sets larger than eight can be programmed in two or more "partial" sets. UniSite can be viewed as being able to program a "window" of eight devices at a time, out of the total number in the set. You can position which eight devices to program using the "Next device" parameter mentioned in the Introduction section. By setting the "Next device" parameter to 1, 9 and 17, you could program successive windows of user data (eight devices at a time)

Note: You can accomplish the same thing using the "Auto Increment" feature. If Auto Increment is set to Y, UniSite will increment the "Next device" parameter for you.

For example, say you want to program 20 devices. With "Next device" set to 1, devices 1 through 8 would be programmed. After these first eight were programmed, you could set the "Next device" to 9 and then program devices 9 through 16. The last four devices could be programmed after "Next device" was set to 17.

The four empty sockets remaining when devices 17 through 20 were programmed would NOT cause an error to be generated; the socket LEDs would just remain off. If you use the "Set Auto Increment" feature, UniSite will reset the "Next device" window to 1 after these last four devices are programmed.

4 Messages

Below is a list of the messages that will appear on UniSite's screens when SetSite is being used. These messages will appear above the socket they pertain to; the introduction section of this manual shows a sample SetSite screen and illustrates where the message area is.

Data Load Err	An error occurred during a Gang/Set Load operation, and data was not correctly loaded from this part.
Device Alg Err	A device algorithm error has occurred.
Elec Erase Err	A device error occurred when UniSite attempted to electronically erase this part.
Empty Socket	UniSite has detected that this SetSite socket is empty. This display may appear if you are doing partial set programming and do not need to use all eight SetSite sockets. The operation will still be completed: this is a status message.
Elec ID Err	The electronic ID of the socketed device does not match the one UniSite has stored in its memory. Make sure the correct device type is installed or selected.
Illegal bit	UniSite has detected already-programmed locations of incorrect polarity in this socketed device. An illegal bit is a programmed device bit whose corresponding memory bit is unprogrammed.
Insertion Err	A device insertion error has occurred.
Non-blank Err	UniSite has detected programmed locations in this device. You may still program OVER the existing data if you wish (by pressing <input type="checkbox"/> or moving the lever to START); this is merely a status message.

Overcurrent	An overcurrent condition was detected during the previous operation. One or more of the socketed devices may be faulty.
PASS	The operation just performed was successful for this device.
Program Err	This display indicates that a programming error has occurred during the last operation. Try another device. The socketed device may be faulty.
Secur Prog Err	An error occurred when UniSite attempted to program the security fuse of this device.
Security Violation	This device cannot be programmed because its security fuse bit is already set to the programmed state.
Verify (1st pass)	The socketed device failed the verify test at the manufacturer's low Vcc level or nominal Vcc level.
Verify (2nd pass)	The socketed device failed the verify test at the manufacturer's high Vcc level.
Verify (2 passes)	The socketed device failed the verify test at manufacturer's low and high Vcc levels.

Programmer Suggestion/Problem Report

If you have a suggestion for improving a Data I/O programmer, or encounter a fault in its operation, please complete this report and return it to Data I/O. Thank you for your input.

Date submitted _____

FOR DATA I/O USE ONLY
Data I/O Reference Number _____ Entered by _____

Customer Information

Name _____ Title _____
Company _____ Department _____
Address _____ Mail Stop _____
City _____ State _____ ZIP/Postal Code _____
Country _____ Phone () _____
Network Address _____ Fax Number () _____

General Information

Device Manufacturer _____ Device Part Number _____ System RAM Installed _____
System Software Version _____ Algorithm Version _____ Serial Number _____
How critical is this problem to you? Extremely Moderately Low impact
Is your programmer covered by a support agreement? Yes No

UniSite Information

Modules installed Site 40 Site 48 ChipSite
 PinSite SetSite Other _____
Number of pin drivers installed _____ System EPROM Version _____
Second disk drive installed? Yes No

2900 Information

Libraries installed Up to 28 pin E/EPROMs All E/EPROMs All PROMs
 All Micros Up to 24 pin PLDs Up to 28 pin PLDs
 All PLDs Non-DIP Base Other _____

3900 Information

Libraries installed All E/EPROMs All PROMs All Micros
 Up to 24 pin PLDs Up to 28 PLDs Up to 44 pin PLDs
 Up to 68 pin PLDs All PLDs Non-DIP Base
 Other _____

AutoSite Information

Libraries installed 300 mil DIP 600 Pin PLCC 20 Pin PLCC
 28 Pin PLCC 32 Pin PLCC 44 Pin PLCC
 52 Pin PLCC 68 Pin PLCC 84 Pin PLCC
 Other _____

Description of Problem/Symptoms

Use the back of this report to describe the problem and the steps necessary to create it. Include references to the menu screen where the problem appears, I/O format, device type (manufacturer and number) and system defaults. Include an example on disk, if appropriate. Return your completed report to your local Data I/O representative or the nearest Data I/O Customer Support office. (Refer to the Preface in your *User Manual* for information on how to contact Data I/O.)

Programmer Suggestion/Problem Report

If you have a suggestion for improving a Data I/O programmer, or encounter a fault in its operation, please complete this report and return it to Data I/O. Thank you for your input.

Date submitted _____

FOR DATA I/O USE ONLY	
Data I/O Reference Number _____	Entered by _____

Customer Information

Name _____ Title _____
Company _____ Department _____
Address _____ Mail Stop _____
City _____ State _____ ZIP/Postal Code _____
Country _____ Phone () _____
Network Address _____ Fax Number () _____

General Information

Device Manufacturer _____ Device Part Number _____ System RAM Installed _____
System Software Version _____ Algorithm Version _____ Serial Number _____
How critical is this problem to you? Extremely Moderately Low impact
Is your programmer covered by a support agreement? Yes No

UniSite Information

Modules installed Site 40 Site 48 ChipSite
 PinSite SetSite Other _____
Number of pin drivers installed _____ System EPROM Version _____
Second disk drive installed? Yes No

2900 Information

Libraries installed Up to 28 pin E/EPROMs All E/EPROMs All PROMs
 All Micros Up to 24 pin PLDs Up to 28 pin PLDs
 All PLDs Non-DIP Base Other _____

3900 Information

Libraries installed All E/EPROMs All PROMs All Micros
 Up to 24 pin PLDs Up to 28 PLDs Up to 44 pin PLDs
 Up to 68 pin PLDs All PLDs Non-DIP Base
 Other _____

AutoSite Information

Libraries installed 300 mil DIP 600 Pin PLCC 20 Pin PLCC
 28 Pin PLCC 32 Pin PLCC 44 Pin PLCC
 52 Pin PLCC 68 Pin PLCC 84 Pin PLCC
 Other _____

Description of Problem/Symptoms

Use the back of this report to describe the problem and the steps necessary to create it. Include references to the menu screen where the problem appears, I/O format, device type (manufacturer and number) and system defaults. Include an example on disk, if appropriate. Return your completed report to your local Data I/O representative or the nearest Data I/O Customer Support office. (Refer to the Preface in your *User Manual* for information on how to contact Data I/O.)

Describe problems and/or symptoms below.

Blank lined area for describing problems and/or symptoms.

FOR DATA I/O USE ONLY

Manual Update	Date Completed
Code	Date Completed
Test Procedures	Date Completed
Retest	Date Completed
Close Date	Date Completed

Device Support Request Form

Dear Data I/O Customer,

Please use this form to request support for specific programmable ICs you want to use with this Data I/O product in the next 6 to 12 months. Indicate which Data I/O product(s) you have just received and what device(s) you would like supported.

Return your completed form to one of the addresses listed on the back. *Note: You may also request device support via our worldwide electronic Bulletin Board System.*

Data I/O Product(s)	Product Version	Device Manufacturer	Device Name	Number of Pins	Physical Package	Date Needed
---------------------	-----------------	---------------------	-------------	----------------	------------------	-------------

Examples are shown in italics.

<i>UniSite</i>	<i>4.2</i>	<i>SIG</i>	<i>22RX40</i>	<i>68</i>	<i>PLCC</i>	<i>6/93</i>
<i>ABEL</i>	<i>4.0</i>	<i>SIG</i>	<i>22RX40</i>	<i>68</i>	<i>PLCC</i>	<i>3/93</i>

Other device information (speed, military, commercial) _____

What devices interest you most for your next design? _____

Name _____ Date _____

Title _____ Phone _____

Company _____ Fax _____

Address _____

Please list other (non-Data I/O) design software products you use.

Please list other (non-Data I/O) device programmers you use.

Send your completed form to one of the addresses listed below.

Attention: Customer Resource Center

Data I/O Corporation
10525 Willows Road N.E.
P.O. Box 97046
Redmond, WA USA 98073-9746
Telephone: 206-881-6444
Fax: 206-882-1043
Telex: 4740166

Data I/O Canada
6725 Airport Road, Suite 302
Mississauga, Ontario, L4V 1V2
Telephone: 416-678-0761
Fax: 416-678-7306

Data I/O GmbH
Lochhamer Schlag 5a
D-8032 Graefelfing
Germany
Telephone: 089-858580
Fax: 089-8585810

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Berkshire RG11 5TS
United Kingdom
Telephone: 0734-440011
Fax: 0734-448700

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2-1-7, Higashi-Shinbashi
Minato-Ku, Tokyo 105
Telephone: 03-3432-6991
Fax: 03-3432-6094 (Sales)
03-3432-6093 (Other)
Telex: 2522685 DATAIO J
